

ABSTRACT OF THE INVENTION

The present invention is a method of assisting the rinsing of a wafer in a single wafer cleaning apparatus. According to the present invention, after exposing a wafer to a cleaning and/or etching solution, the cleaning or etching solution is removed from the wafer by spinning the wafer and dispensing or spraying DI water onto the wafer as it is spun. The centrifugal force of the spinning wafer enhances the rinsing of the wafer. In order to enhance the rinsing of the wafer, in an embodiment of the present invention a solution having a lower surface tension than water, such as but not limited to isopropyl alcohol (IPA) is dispensed in liquid or vapor form onto the wafer after the DI water.

In a specific embodiment of the present invention, the vapor of a solution with a lower surface tension than DI water, such as IPA vapor, is blown on the wafer in order to break up the DI water bulging up at the center of the spinning wafer.

In another embodiment of the present invention, a gas such N₂, is blown for a short period of time onto the center of the wafer to break up the DI water bulging up at the center of the spinning wafer. In yet another embodiment of the present invention, acoustic or sonic waves are applied to the wafer as it spins in order to help diffuse the DI water from the wafer. And in still yet another embodiment of the present invention, the DI water which is dispensed onto the spinning wafer is heated to a temperature above room temperature and preferably between 60-70°C to enhance the diffusion of water from the wafer. The low surface tension liquid, acoustic application, gas blowing, and heated DI water can be used alone or in combination with one another into enhance the rinsing of a wafer and thereby decrease the rinsing time of a single wafer process to less than 20 seconds.